DOCUMENT RESUME

ED 207 359 FL 012 565

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TITLE Children's Knowledge and Text Comprehension.
PUB DATE Oct 80
NOTE 13p.; Paper presented at the Annual Boston University Conference on Language Development (5th, Boston, MA, October 1980).

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Children; *Cognitive Processes; *Cultural Background; Educational Experience; Expectation; Experiential Learning; Instructional Materials; *Reading Comprehension; Social Experience
IDENTIFIERS Schemata

ABSTRACT

Background knowledge and experience individuals bring to an activity influence the degree of meaning derived from it. This paper focuses on children's knowledge and text comprehension as it explores the nature of the relationship between them. Studies with children between the ages of five and twelve were undertaken to examine the effect of children's script-like knowledge of their comprehension of texts. The issues addressed are: (1) the use young children can make of their existing knowledge for comprehending narratives, (2) the relationship between the familiarity of the topic of a passage and children's comprehension of it, and (3) children's sensitivity to story information when it is inconsistent with their own knowledge. Results indicate that young children seem to have script-like or ordered, generalized knowledge of commonplace situations which can be utilized in text comprehension. Kindergarteners realized poorer comprehension than older children of events the former knew less well. Passages about uncommon events were the most difficult to comprehend, even though all required information was provided and students could request to hear portions of the narrative again. Special efforts may be needed to get younger children to attend to text-specific information when such information conflicts with their knowledge. (JK)

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ED207359

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Paper presented at the Fifth Annual Boston University Conference on Language Development, Boston, October 1980.

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Children's Knowledge and Text Comprehension

Ann Jaffe Pace

Over the past several years, a great deal of attention has been paid to the influence of "prior" (or "background" - or "world" - or "existing") knowledge on text comprehension, as well as its effect on many other aspects of human cognitive functioning. The major theme of this approach (qv, Anderson, 1977) is that the background of knowledge and experience people bring to an activity such as reading importantly influences the degree of meaning derived from it. Although most of the research in this area has involved adults, this paper will focus on children's knowledge and text comprehension in an attempt to explore and define the nature of the relationship between them.

While the observation that prior knowledge contributes to comprehension may seem obvious, serious investigation of this question has been a relatively recent phenomenon. Use of existing knowledge may also be a pervasive aspect of any language act. Adams and Bruce (1980), for example, have suggested that we can only learn through language what, in some way, we already know since we use familiar concepts and vocabulary to explain novel ideas. A major reason for the current interest in the effect of prior knowledge, however, has been the recent appearance of a number of related constructs, such as "schema" (Rumelhart & Ortony, 1977), "script" (Schank & Abelson, 1975, 1977), and "frame" (Minsky, 1975). These ideas developed from the premise that what people know and remember about their experience can be represented by interrelated patterns of component elements or parts (a "schema") or by stereotypical sequences of events (Schank & Abelson's "script"). Schema is probably the more inclusive construct; scripts and frames could be viewed as specialized kinds of schemata. In general, such constructs have permitted theorists and researchers to conceive of existing knowledge as having properties or characteristics that are somehow testable.

Admittedly, many different kinds of knowledge are used in text comprehension. For example, Adams and Bruce (1980) identify three kinds of knowledge involved in the comprehension of stories. One kind is conceptual knowledge, or what we know about things and events in the world; another is social knowledge, or those expectations that we gradually acquire regarding typical behavior in social situations; and the third they call story knowledge, which includes awareness of story structure and characteristics of narration. This paper is concerned primarily with the first of these, or conceptual knowledge.

A prior question to the nature of the relationship between children's knowledge and comprehension is what children know. Children, in fact, know many things, but they know more about some things than others, whether or not they can effectively relate this knowledge to others. What younger children are likely to know quite well are events that they have experienced repeatedly in their own lives. Examples of such things are supermarket shopping, eating in a fast-food restaurant, and getting ready for bed, or the kind of stereotypical action sequences that can be characterized by scripts, with "required" slots or component episodes in which certain activities always -- or almost always -- occur. Katherine Nelson, in particular (1977, 1980) has been studying the development of such script-like knowledge in preschool and early school-aged children. She has found (1980) that even children as young as three appear to have acquired ordered, generalized knowledge about familiar events.

Children should be able to utilize such knowledge to comprehend passages which refer to these kinds of common experiences. In a series of studies with children between the ages of five and twelve, the effect of children's script-like knowledge on their comprehension of texts was examined. Several issues are addressed in these investigations. One concerns the use young children can make of their existing knowledge for comprehending narratives.

Another deals with the relationship between the familiarity of the topic of a passage and children's comprehension of it. Additionally, children's sensitivity to story information inconsistent with their own knowledge is considered.

If children have acquired integrated knowledge of frequently occurring events by the time they enter kindergarten, this knowledge should affect text comprehension in several ways. First, if a passage essentially relates a script for a common, everyday activity that even five-year olds may have overlearned, comprehension of such passages should be very good for all elementary-grade students, regardless of age. They should recognize the text as another instance of a well-known event; no developmental differences in comprehension may occur. However, developmental differences should appear with passages that concern events that would be better known to older children. Further, students of any age should be able to use their existing knowledge of such events to supply information not provided explicitly in the texts. Expectations which are consistently associated with certain situations should not have to be stated specifically in a passage. For example, a narrative about supermarket shopping which mentions a grocery cart or basket need not contain an explanation for its use. This information should be part of a person's script for this event and would be considered redundant information by most authors. Therefore, children should be able to comprehend equally well texts which did and did not include such assumed knowledge, if they use their own scripts to complement explicitly stated information.

In the first of a series of investigations of children's knowledge and comprehension, these assumptions were tested (Pace, 1978); results consistent

with them were produced. Supermarket shopping and making a peanut butter-and-jelly sandwich were chosen to represent situations that were predicted to be well known even to kindergartners. Other events, such as playing a game of checkers or planting a garden were presumed to be better known by older children, while activities such as making lye soap or making a lithograph were thought to be beyond the experience of most -- if not all -- elementary children. "Script-lists" were compiled for the more common events. These lists consisted of the most frequently mentioned -- or most apparently necessary -- steps in a script. Kindergartners and students in the second, fourth, and sixth grades were asked to tell what they knew about these events; non-specific probes were used to try to make sure that children were revealing all that they knew. To assess children's knowledge of the more unusual activities, they were simply asked whether they were familiar with these situations. As measured by the script-lists, knowledge of the very common events was nearly perfect across all grades; only three script items in all were omitted. Consistent with expectations, greater variability and greater differences among grades were obtained on the checkers and garden scripts, while no student in any grade revealed specific knowledge of the more uncommon events.

Short narrative passages about these different situations had been prepared so that the information in them corresponded to that in the script-lists. Further, for the more common events, two kinds of texts were used. "Explicit" passages contained all the script information that would be needed to answer a subsequent set of comprehension questions. In "implicit" passages, information was deleted which groups of college students had judged could be assumed from the rest of the passages. Only explicit narratives about the

more unusual situations were used. Children in each of the four grades listened twice to one story of each type and then answered questions about them. Comprehension of the passages about the very ordinary situations was very good at all grade levels. Kindergartners performed about as well as sixth graders. In addition, comparable results were obtained for the explicit and implicit texts. Apparently, all the children knew these events so well that they could supply what the text omitted. While these results do not address children's comprehension of text-specific information that may not be part of a child's existing script, they do show that even five and six-year olds can recognize the apparent theme of a narrative and use their own knowledge of the events described to go beyond the information provided. Thus, young children do seem to have script-like or ordered, generalized knowledge of commonplace situations and can utilize it in text comprehension.

By contrast, kindergartners had poorer comprehension than the older children of the events they knew less well, such as playing checkers, and this was true of both the explicit and the implicit passages. It is interesting, in this case, that hearing all the information did not seem to benefit the younger children. What they did not know well, they could not comprehend well. Not surprisingly, the passages about the more uncommon events were the most difficult to comprehend, even though all the required information was provided and even though students could request to hear portions of the narratives over again. Sixth graders performed much better on these passages than did any other group of students; while kindergartners did more poorly. The reasons for this differential performance are probably several. The results, however, may be related less to the younger children's

lack of conceptual knowledge about these passages than to their lack of what could be called procedural or strategic knowledge. In other words, they may not have known what to do to comprehend a text concerning something about which they knew little. Among the skills children in kindergarten or second grade may not have developed sufficiently is the ability to monitor their own degree of comprehension (Pace, 1978).

Although this study showed that even kindergarten children could use their existing knowledge of everyday situations to comprehend well passages which essentially incorporated scripts for these events, most texts obviously do not correspond so exactly to such scripts. More typically, background knowledge has to be invoked repeatedly as part of an on-going comprehension process. Further, texts may contain information which is inconsistent with the expectations generated by past experience. In such cases, predictions based on existing world knowledge would not be confirmed, and comprehension problems might result. Especially if the utilization of scripts for very well known events were relatively automatic, in the sense of occurring without conscious awareness, young children in particular may not even detect information which violates their usual expectations. Thus, in some situations, the ready availability of organized knowledge may hinder rather than help comprehension. Young children may simply identify a text as an instance of something they already know and, in some way, incorporate the entire script for this event. They may then "read out" the information in their own scripts and remain relatively insensitive to discrepancies between these scripts and information in the passages.

To test this possibility, some of the information in the passages about supermarket shopping and the peanut butter-and-jelly sandwich was

changed (Pace, 1979). For example, the script-inconsistent version of the supermarket story had a mother buying a color TV set in the market instead of a bag of cookies. Elementary-school children were presented with a normal form of one passage and a changed version of the other. Students in kindergarten and the second, fourth, and sixth grades read the same passages. One comprehension question for each story pertained to the information that was changed in the script-inconsistent forms. The results were striking. Two-thirds of the kindergartners and three-quarters of the second-grade listeners failed to detect the altered information. On the other hand, all the fourth graders did so and all but two of the twelve sixth graders. Also, when second graders read the passages, they performed differently. Two-thirds of this group, as well as the same proportion of the older readers did detect the inconsistent information.

These results are provocative for a few reasons. One is the apparent difference between the reading and listening conditions for the second graders. The other is the discrepancy in performance between the younger and older children who listened to the passages. The reading-listening comparison provides some support for the suggestion made by Olson and Hildyard (1978) that information which cannot be obtained from existing knowledge might be understood better if it were presented in writing rather than orally. If this is so, then reading may be one means of getting children to attend to text-specific information. Other possibilities include increasing the salience of the inconsistent information or forewarning children to expect to hear something unusual. Both procedures were tried in a subsequent study (Pace, 1980), and both seemed to work. In this

investigation, the altered information was clearly anomalous. For example, the mother in the supermarket passage purchased an elephant, while the child in the sandwich narrative put shoe polish, rather than peanut butter, on a piece of bread. Over 60% of the kindergartners and second graders who heard these passages detected this information. A comparable percentage of children in both grades noticed the inconsistent information in all altered versions of the narratives when they were alerted to attend carefully to them. Although these inducements were effective, the results obtained suggest that special efforts may be needed to get younger children to attend to text-specific information when such information conflicts with their own knowledge. Olson (1976) has proposed that successful comprehension of texts may require recognizing that text is autonomous in the sense that meaning resides in the text itself. This recognition may not come readily to younger children who judge a passage to concern an event which is familiar to them. When such a judgment is not made, as may be the case with fairy tales or fantasies, comprehension apparently is not a problem.

Taken together, these studies indicate that younger children can and do use their own knowledge to comprehend narratives, but that utilization of scripts or complex patterns of generalized knowledge may be a mixed blessing. The possible interfering role of existing knowledge in children's comprehension should be explored further, and attempts should be made to identify when, how, and under what circumstances children begin to treat text as autonomous. Although the important facilating effect of prior knowledge on comprehension has, by now, been demonstrated with both adults and children, one of the requirements of schooling may be to learn that

text information cannot necessarily be derived from personal experience. If this is so, then deliberate instructional practices may be required to help younger children deal with text-specific information. Studies of children's comprehension monitoring ability (Pace, 1978, 1981) suggest that younger children -- those in kindergarten and the primary grades, particularly -- may not have the skills needed to deal with material not directly related to their own experiences when that material is not inherently interesting. An essential instructional task may be to make deliberate attempts to teach such skills. Children could be encouraged to reflect upon their own responses and to think about their own degree of understanding, and then they could be helped to internalize procedures to monitor and improve their comprehension. Certainly, this seems to be an effort worth trying.

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